

REMARKS

The Examiner objected to the drawings for failure to show every feature of the invention specified in the claims. Specifically, the Examiner required illustration of "said cured polyurethane product into a water leak to seal said water leak" and "wherein said leak is up to about 150 gallons per minute or higher." Applicant concurrently submits three new pages of drawings, including new Fig. 5, which contains the required illustrations. Basis for the new Fig. 5 may be found at page 8, lines 1-23 of the specification. Consequently, no new matter is contained in the new Fig. 5. Approval of the new Fig. 5 is respectfully requested. The other two pages of drawings are identical to those originally filed, except for the indication at the top of each page that there are now three pages of drawings.

Claim 2 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite. In particular, the Examiner objected to the phrase "plug-like" as describing the check valve. Claim 2 has been amended to specify that the check valve has a round cross section and is dimensioned so as to obtain an interference fit with the elongated sheath. Figure 2 shows the check valve to have a round cross section, and thus now new matter is incorporated by the amendment to claim 2.

Claims 1, 2, and 4 were rejected under 35 U.S.C. §102(b), as being anticipated by Jacobsen et al. (hereinafter referred to as "Jacobsen"). The Examiner considered that Jacobsen disclosed a device for dispensing a product resulting from mixing at least two liquid substances, which comprised an elongated sheath, a dispensing orifice, a check valve having at least one exit opening, a closing element, a static mixer, and a feeding system. The Examiner further stated that the Jacobsen device "will perform the method recited in claim 5 during normal operational use of the device." Applicant understands that the Examiner intended to refer to the method of claim 4 and has directed the following remarks to such claim.

Applicant has amended claims 1, 2, and 4 to define novel subject matter over the Jacobsen patent. First of all, the check valve is required to be secured to the elongated sheath of the

dispensing device. Securing the check valve results in an improvement in the performance of the device and permits its use when high internal pressures are generated in the essentially closed mixing and reaction chamber. A particular method of securing the check valve is included in claims 2 and 10-14. Applicant believes that the check valve of Jacobsen is not secured in the chamber in the same manner as the claimed invention. By following Jacobsen's design, the check valve is only held in place when the complete assembly is connected. If nut 38 is unscrewed, it disconnects the tubes and permits valve 10 to be forced out and stop further forward injection of the reactive material. On the other hand, the check valve of the invention is secured in place during both the time of operation and when the gun and feeding tubes are disconnected following completion of injection. Such feature permits the check valve to remain in the tube, thereby stopping any spillage and facilitating further forward injection of residual material in the tube. If the check valve is not secured in the chamber, the check valve will be forced out, and further forward injection of residual material in the tube will not occur. It is further point out that the claims have been amended to require that the closing element of the check valve comprises a rod having a shaft and closing end, the rod being capable of axial movement due to pressure created within the check valve, whereby the closing end is capable of being moved to close the check valve against back pressure created within the mixing and reaction chamber. The check valve of Jacobsen is quite different from that mentioned above.

Jacobsen deals with the dispensing of caulk, adhesive, potting material, and other fluid materials. Jacobsen makes no mention of dispensing cured polyurethane and the resultant high pressures created by the reactants in the mixing and reaction chamber. Moreover, Jacobsen does not address preventing material back up and damage to the feeding system caused by such pressures. Hence, novelty is present in the form of securing the check valve, the claimed rod structure of the check valve, the specified materials, and an internal pressure of 45 psi or higher. These factors are believed to be unobvious to one of ordinary skill in the art because such features are utilized to prevent damage to the feeding system.

In view of the above remarks, the Examiner is requested to favourably reconsider the rejection of claims 1, 2, and 4 under 35 U.S.C. §102(b).

Claims 1, 2, 4, and 5 were rejected 35 U.S.C. §102(b), as being anticipated by Books et al. (hereinafter referred to as "Books"). The Examiner considered that Books disclosed a device for dispensing a product resulting from mixing at least two liquid substances, which comprised an elongated sheath, a dispensing orifice, a check valve having at least one exit opening, a closing element, a static mixer, and a feeding system. The Examiner further stated that the Books device "will perform the method recited in claim 5 during normal operational use of the device." Applicant understands that the Examiner intended to refer to the method of claims 4 and 5 and has directed the following remarks to such claims.

Applicant has amended claims 1, 2, 4, and 5 to define novel subject matter over the Books patent. First of all, the check valve is required to be secured to the elongated sheath of the dispensing device. Securing the check valve results in an improvement in the performance of the device and permits its use when high internal pressures are generated in the essentially closed mixing and reaction chamber. A particular method of securing the check valve is included in claims 2 and 10-14. It is pointed out that Books requires two coil spring check valves, one for each tube. The claimed invention requires a check valve into which two feed streams are introduced, rather than a check valve for each stream.

Moreover, the claims have been amended to require that the closing element of the check valve comprises a rod having a shaft and closing end, the rod being capable of axial movement due to pressure created within the check valve, whereby the closing end is capable of being moved to close the check valve against back pressure created within the mixing and reaction chamber. The coil spring check valve of Books is clearly distinct from that mentioned above.

Books deals with the dispensing of a settable fluid product, which may comprise urethane foams. Urethane foam is an open cell material, unlike the closed cell polyurethane material dispensed by the instant invention. The respective materials are formed by different reactions and

involve different internal pressures generated by such different reactions. Books makes no mention of dispensing cured polyurethane and the resultant high pressures created by the reactants in the mixing and reaction chamber. Moreover, Books does not address preventing material back up and damage to the feeding system caused by such pressures. Hence, novelty is present in the form of securing the check valve, the claimed rod structure of the check valve, the specified materials, and an internal pressure of 45 psi or higher. Applicant believes that these factors would not be obvious to one of ordinary skill in the art because such features are utilized to prevent damage to the feeding system.

In view of the above remarks, the Examiner is requested to favorably reconsider the rejection of claims 1, 2, 4, and 5 under 35 U.S.C. §102(b).

Claim 3 was rejected under 35 U.S.C. §103(a) as being unpatentable over Books in view of Gerich. The Examiner considered that Books taught all of the features of the claimed invention except that the closing element comprises a rod having a shaft and further considered that Gerich teaches the use of a check valve having a rod and shaft because such check valve was deemed to provide an alternative equivalent means. Applicant does not agree that the claimed invention, as amended, would be obvious to one of ordinary skill in the art.

The Books patent and the claimed invention have been distinguished above; and Applicant hereby repeats such discussion. Although Books and Gerich suggest the use of check valves to control individual material streams, Books controls a low-pressure system while Gerich controls a high-pressure system. It would not be obvious to one of ordinary skill in the art to substitute the check valve of Gerich into the Books system because the respective systems are designed for different pressures. It further appears that the check valves of Gerich are mounted in the end of the mixing tube rather than in the mixing reaction chamber, thereby further rendering the proposed substitution non-equivalent.

In view of the above differences, Applicant believes that the rejection of Claim 3 should be favorably reconsidered and withdrawn by the Examiner.

Claim 6 was rejected under 35 U.S.C. §103(a) as being unpatenable over Books in view of Morano et al. (hereafter referred to as "Morano"). The Examiner considered that Books taught all of the features of the claims invention except that the substances comprise polymethylene polyphenyl isocyanate and 4,4 diphenylmethane diisocyanate. Claim 6 has been cancelled by Applicant and incorporated into claim 4.

The Books patent and the claimed invention have been distinguished above; and Applicant hereby repeats such discussion. Books deals with the dispensing of a settable fluid product, which may comprise urethane foams. Urethane foam is an open cell material, unlike the closed cell polyurethane material dispensed by Morano and by the instant invention. The respective materials are formed by different reactions and involve different internal pressures generated by such different reactions. Books makes no mention of dispensing cured polyurethane and the resultant high pressures created by the reactants in the mixing and reaction chamber. Moreover, Books does not address preventing material back up and damage to the feeding system caused by such pressures. Hence, novelty is present in the form of securing the check valve, the claimed rod structure of the check valve, the specified materials, and an internal pressure of 45 psi or higher. Applicant believes that these factors would not be obvious to one of ordinary skill in the art because such features are utilized to prevent damage to the feeding system.

In view of the above differences, Applicant believes that the rejection of Claim 6 should not be continued, as it pertains to amended claim 4.

Claims 7-9 were rejected under 35 U.S.C. §103(a) as being unpatenable over Books in view of Morano taken further in view of McCabe et al. (hereinafter referred to as "McCabe"). The Examiner made this rejection for the same reasons set for the in the rejection of claim 6 and further considered that McCabe taught the use of dispensing a polyurethane product into a water leak. Applicant does not agree that the subject matter of claims 7-9 is obvious for the following reasons.

The above discussion regarding the Books and Morano patents pertaining to the rejection of claim 6 is hereby repeated. McCabe utilizes an injection system that is quite different from that

depicted by Books and Morano and, accordingly, would provide little motivation to dispense a urethane material to stop a water leak.

In view of the above differences, Applicant believes that the rejection of Claims 7-9 should be favorably reconsidered and withdrawn by the Examiner.

In view of the above remarks, it is believed that the application is in condition for allowance and a notice to such effect is respectfully requested. Should the Examiner have any questions or require further information, a call to the undersigned attorney would be appreciated.

Respectfully submitted,

Dated: 5/2/05

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